

# Lucid Peninsula, a Physical Narrative Art Installation Comprising Interactive 360° Virtual Reality Components

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## ABSTRACT

This article describes the design of the Lucid Peninsula, a Physical Narrative Art Installation, developed to engage a wide variety of audiences with a possible future, in which the practice of lucid dreaming plays an important role. In this article, the authors present and discuss the results from the in-the-wild evaluation of the audience reception of the artwork. Of particular concern is the assessment of the role of the virtual reality (VR) interfaces designed to deepen involvement and interaction with the art piece. This article reports on the conception and production of the installation as well as its evaluation and derived insights. The study provides evidence of the positive role of the 360° mobile VR assets in strengthening the narrative and the artist's intent in the Lucid Peninsula artistic installation. Results show how the VR interface supported engagement, positive affect, and reflections on the physical narrative scenario.

## KEYWORDS

Experiential Futures, Interactive narrative in the real world, Interactive Storytelling, Mobile Interaction, Physical Narratives, Virtual Reality

## INTRODUCTION

The widespread availability and affordability of digital technologies is continuously inspiring artists to experiment and make use of them in their artworks. The fascination of artists with technologies goes back a long time, manifesting the convergence of art and electronics in the late 60s, with works such as PULSA and Kluver and Raushenberg Experiments in Technology and Art (Bornstein, 1975) to name a few. But it is only in the early 1990s that New Media Art and Computational Art emerged as a movement (Tribe & Jana, 2006). It is in these years that Ars Electronica, today the most prominent event on art and technology, emerged. What was originally an exploration of computer-controlled devices for artistic expression, such as screens and audio/video feedback, quickly expanded to the physical environment and augmentation of human perception (Paul, 2015). The evolution of the prize categories in Ars Electronica<sup>1</sup> illustrates the trends in the art and technology domain (Trifonova & Jaccheri, 2008). Interactive Art, including installations, appears in the early 90s and is currently one

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of the most important categories in this event. Today's technological advances in Physical Computing, the Internet of Things (IoT) and VR increasingly influence the Art scene, allowing artists to make use of technology as a creative medium per se and as a support for their art (Abbasi, Vassilopoulou, & Stergioulas, 2017). Artists sculpt interactive experiences engaging with the public through digital media and audience participation (Hu, Frens, Funk, Wang, & Zhang, 2014). This trend encourages artists to consider Human-Computer Interaction (HCI) methods and techniques to capture audiences' feedback as constructive measures that can improve the audience reception of the art work. Similarly, HCI has extended its focus to consider what might be termed "cultural applications" of computing and the new challenges posed by an emerging generation of artistic, entertainment, leisure, heritage and social experiences (Benford, Giannachi, Koleva, & Rodden, 2009). Most efforts in this direction are contributions from artists and researchers (Morreale & De Angeli, 2015) (Trifonova & Jaccheri, 2008). Nevertheless, the evaluation of digital art within HCI research is still an open challenge and require broader measures of user experience. This article frames the rising potential of VR immersive interfaces in Art Installations, in parallel with the challenge of designing and evaluating them. By sharing our discussion, the researchers envisage contributing to both communities of creative practitioners and scholars, inform them and inspire them through our findings.

## RELATED WORK

This section highlights related work in Digital Interactive Art Installations. Finally, the authors review the main HCI and user experience methods for evaluating interactive art installations.

### History and Definitions

The convergence of Art and Electronic technologies dates back to the 1960s. The first Computer Art Exhibition took place at Technische Hochschule in Stuttgart in 1965, followed by the Howard Wise Gallery in New York city (Trifonova & Jaccheri, 2008). Installation Art, on the other hand, is a phenomenon which might be traced back to the beginning of the 1900, with artists like Marcel Duchamp and its work, the "Fountain", in 1917. For the purpose of this article the authors look at Interactive Installations as a subsection of Installation Art - a contemporary art form in which the viewer is required to physically enter the work in order to experience it (Jacucci et al., 2009). In particular we look at one type of Installation Art, which is Physical Narrative. To name a few examples of Physical Narratives, we highlight Punchdrunk's *Sleep No More* environmental theatre (Piepenburg, 2011), and Time's Up's experimental situations that encourage open-ended explorations of physically constructed stories rich spaces. (Time's Up, 2013).

### Interactive Art Installations: From Physical Computing to Extended Reality

In the last decade technologies like Physical Computing, Virtual Reality and the Internet of Things (IoT) have been increasingly used by artists to complement their work (Kahan & LaBerge, 1994). In this section, the authors trace a connecting line from early Interactive Art installations to the recent renaissance of Virtual Reality (VR) and the coming about of the Extended Reality (XR) paradigms (Klinker, Stricker, & Reiners, 1998). Previous integration of technology with Installation Art has focused on the use of speech (Wright, Evans, Linney, & Lincoln, 2007), gaze (Satomi & Sommerer, 2007) or body movement (Morreale & De Angeli, 2015), as input for interactive artwork; the use of actuated/kinetic devices (Schardt, Schmitz, Käfer, & Hofmann, 2015) or projection and touchscreens (Aasbakken, Jaccheri, & Chorianopoulos, 2012) to mediate the artistic output. Bluff and Johnston make use of mobile devices, to control and adjust open air interactive installations (Bluff, 2015). Recently, with the commercialization of easy-to-use VR platforms (such as Oculus VR and Google Cardboard), we have witnessed a renaissance of the VR practices and what was once known as the Milgram continuum (Milgram, Takemura, Utsumi, & Kishino, 1994). While VR has been an experimental ground for artist for decades, with Jeffrey Shaw's VR Golden Calf exhibited at Ars

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